

# Consultation as education: a Learning Management System for online open consultations on bioethical issues

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**Abstract.** Democratic theorists and practitioners have grown increasingly interested in the innovative possibilities opened up by the so-called digital democracy. Information and communication technologies (ICTs) have been suggested as potential solution to legitimacy and trust issues by which current democratic arrangements seem to be affected. These technologies would ameliorate or overcome completely such issues providing a technical ground for genuinely new and sustainable participatory processes that could in turn result in more radical forms of democracy. This paper focuses on the possibility of having participatory processes meant both to (i) enable citizens' input into policy-making for bioethical issues, i.e. ethical issues arising from the biomedical and biotechnological progress, and to, by the very same token, (ii) provide citizens with vetted and contestable information and with the proper rhetorical tools for an authentic deliberative contribution.

## Introduction

Democratic theorists and practitioners have grown increasingly interested in the innovative possibilities opened up by the so-called digital democracy (Coleman &

Blumler, 2009; Coleman & Shane, 2012; Davies & Gangadharan, 2009; Fung, 2003). Information and communication technologies (ICTs) have been consistently suggested as a potential solution to legitimacy and trust issues by which current democratic arrangements seem to be affected (as shown, for instance, in low electoral turnout rates and popular outcries). These technologies would ameliorate or overcome completely such issues providing a technical ground for genuinely new and sustainable participatory processes, capable of easily scaling up to an entire polity. This could in turn result in more radical forms of democracy.

So far, however, such promises have remained mostly unattained. The democratization of the public sphere that would supposedly follow the disruption of the media system has proven hard to gather empirical support. Hindman (2009) showed how the impact of the Web on the media has *not* resulted in the kind of narrowcasting of information that had been prefigured as a remedy to the domination of the public sphere by socio-economic élites. Slightly further on the spectrum of informal to formal loci of the public sphere (Mansbridge, 1999), democratic innovations—i.e. “democratic devices that provide citizens with a formal role in policy, legislative or constitutional decision-making” (Smith 2009, Introduction)—leveraging on ICTs have failed to engage significant, and/or representative portions of the population and have deployed a vast array of widely differing designs which made their impact hard to gauge and even harder to compare (Abelson, Blacksher, Li, Boesveld, & Goold, 2013).

Our contribution focuses on the possibility of having online participatory processes meant both to (i) enable citizens’ input into policy-making for bioethical issues, i.e. ethical issues arising from the biomedical and biotechnological progress, and to, by the very same token, (ii) provide citizens with vetted and contestable information and with the proper rhetorical tools for an authentically deliberative contribution to public decision-making. We intuitively believe that the same method could support issue-specific policy-making in areas (other than bioethics and health policy) whose deliberative pattern is relevantly similar to the one we outline for bioethics and health policy.

## The normative standpoint

When, in 1927, John Dewey published his “The public and its problems” (Dewey, 1954, p. 31) as a reply to Walter Lippmann’s skepticism in democracy (Lippmann, 2011), the reasons for skepticism in democracy Dewey was counterarguing were very similar to the ones that characterize current elitist and technocratic stances: a disquietingly low voter turnout, a widespread apathy, the

disaffection with politics, the uninformed sentimental complaints, the swift preferences of the public, the detachment of candidates' electoral fate from their political expertise, the influence of "Big Business" on electoral outcomes and on enacted policies, and so forth. All of this, paired with the increasing complexity of matters that are part and parcel of policy-making concerning controversial techno-scientific issues, apparently made (and still seem to make) a forceful case for some form of technocratic government. Dewey himself lamented the disrupting impact of "[s]team and electricity" on traditional modes of social cooperation (Dewey, 1954, p. 141)<sup>1</sup>, therefore sharing Lippmann's premises. However he went on to argue that the solution to this kind of disarray between technological progress and social practices was not the further removal of policy-making from the population, but rather the proactive cultivation of a more progressive public sphere. This, he says, is tantamount to subscribing to a specific interpretation of the old saying that the cure for the ills of democracy is indeed more democracy. This interpretation excludes that "the evils may be remedied by introducing more machinery of the same kind as that which already exists, or by refining and perfecting that machinery" (Dewey, 1954, p. 144). The suggestion that Dewey put forth was rather that of engaging with the construction of a robust "Great Community" in which members of sparse groups within the "Great Society" ought to share respectfully their views.

Nowadays, even liberal democratic theorists like Urbinati charge the Web (along with a number of other recent evolutions of the public opinion such as the turn to populist or plebiscitary forms of democracy) with having deteriorated the normalcy of public opinion formation, to the point that she claims the new media have managed to disfigure Western democracy, undermining one of its essential phenotypic traits, i.e. traditional mass media (Urbinati, 2014, p. 16). And indeed, today's talk in the public sphere seems affected by evils peculiarly similar to those that affected democracy between the two world wars. Dewey's remedy thus looks as promising as it did almost a century ago. In fact, the failure of recent attempts at fostering a more participatory kind of democracy might be due to the misplacement of their efforts, a misplacement that we can characterize, with Dewey's words, as an attempt at "introducing more machinery of the same kind as that which already exists". In fact, even when deemed successful, consultative initiatives fail to gain traction due to the low number of people involved and to their scarce representativeness of the general population.

The most notable Italian example is the recent *partecipa!* initiative launched, widely advertised and financially well supported by the Monti cabinet<sup>2</sup>. 130'000

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<sup>1</sup> As we recall below, Dewey suggests that the problem is clearly not the pace of technological progress, but rather the failure of democratic institutions to take up such progress and evolve, thus letting ideas and ideals lagging way behind technology.

<sup>2</sup> The initiative ended after the government had been replaced by the Enrico Letta cabinet.

citizens submitted online surveys over the course of the consultation<sup>3</sup>. Once reported to the highest political offices the long document summarizing the results of the consultation, though, was never referred to in the actual institutional discussions on constitutional reforms. The survey itself did not differ significantly from a standard market survey. The only relevant difference was, as a matter of fact, that market surveys are specifically addressed at representative samples of the target population. The unrepresentativeness of the sample (and its modest size as compared to the entire population with voting rights—more than 45 million people<sup>4</sup>) might be one of the reasons justifying complaints in case the report was actually used to feed into the process of constitutional reform. This could be avoided completely in case the scope of the consultation is restricted to the horizontal, peer-to-peer exchange of reasons that ground some course of action over others. This is what, in a nutshell, deliberative democracy prescribes: that reasons be given as to why some collectively binding decision is being taken (Gutmann & Thompson, 2004, 1996). Upstream deliberative engagement can be a way to provide representative institutions with the reasons that ought to be taken into account, and hopefully formally addressed, whenever public choices are taken vis-à-vis some form of moral disagreement. We believe this is compatible with democratic innovations aimed, in a Deweyan spirit, at fostering a sense of communality.

This view does not predicate against the backdrop of a form of radical alternative to representative institutions. In fact, if one does not want to go for a plebiscitary specification of the deliberative democratic ideal, then deliberative democracy is to be turned practically into some—more or less complex—articulation of political representation and direct (depoliticized<sup>5</sup>) participation (Pettit, 2004). Developing a similar line of thought Sabel and Cohen in the late '90s presented their idea of a directly-deliberative polyarchy (Cohen & Sabel, 1997).

A host of attempts at deliberative bioethics have been made (Abelson et al., 2013), the most renowned being the one conducted by the Human Fertilisation and Embryology Authority (HFEA) in the UK upon receiving, in 2006, a license request for the creation of what came to be known as cybrids, i.e. cells created via the nuclear transfer of human somatic cells into non-human oocytes (HFEA, 2007). Within the array of consultative instruments used by the HFEA were face-to-face deliberative workshops. These unfortunately proved part of their

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<sup>3</sup> The report is publicly available at [http://www.partecipa.gov.it/assets/PARTECIPA\\_Rapporto\\_Finale.pdf](http://www.partecipa.gov.it/assets/PARTECIPA_Rapporto_Finale.pdf) (last accessed April 4<sup>th</sup>, 2014).

<sup>4</sup> As measured for the latest political elections. Data can be found at [http://www.interno.gov.it/mininterno/export/sites/default/it/assets/files/25/2013\\_02\\_07\\_Guida\\_alle\\_Politiche\\_Servizio\\_elettorale.pdf](http://www.interno.gov.it/mininterno/export/sites/default/it/assets/files/25/2013_02_07_Guida_alle_Politiche_Servizio_elettorale.pdf) (last accessed April 4<sup>th</sup>, 2014)

<sup>5</sup> Pettit's specification of what depoliticization amounts to is opaque and partly ambiguous. In fact, the kind of institutional innovations he calls for as depoliticized complements to representative democracy are participatory in nature and therefore suggest that what he has in mind with depoliticization is something akin to the removal of professional politicians from some depoliticized institutional loci.

limitations: being very costly, and affording relatively little time for participants' information and consideration. On the other hand the Authority's efforts to take the consultation online were limited to a paperless translation of a standard survey. The range of activities proper of deliberation can be supported via online tools and it seems intuitive to at least give a try to such solutions to a problem that has been apparent for quite some time now.

In the light of what we said it does make sense that the technological solution with which we decided to support our online consultation ended up being a Learning Management System. This enables the sort of collaborative and deliberatively discursive finalized efforts that might ameliorate the ills of contemporary democracy.

## The deliberative process

The deliberative process that is being experimentally deployed has been drafted and perfected as a UML-compliant Activity Diagram (Fowler, 2003). Its structure embodies the theoretical precepts laid out as a set of deliberative criteria by Boniolo, and Boniolo and Di Fiore (Boniolo & Di Fiore, 2010; Boniolo, 2012). In particular it embeds a minimal requirement for scientific competence and moral reasonability. This is believed to enhance the discussion rendering it genuinely deliberative.

In Fig.1, colors identify different categories of actors (the owner of the process in blue, a board of scientific and ethical experts in green and participants in red), whereas the shapes of the boxes is used to signal actions (rectangles) and objects (circles). Cylinder-shaped boxes denote pools of data collected at specific time points.

In describing the process here we employ some degree of abstraction in that we outline how participation ought ideally to look like. Further below we instead describe the actual functioning of the online environment that supports our experimental deployment of the process. This distinction will become clearer as we define the experimental design.

Participants will ideally have to take part in a two-stage participation workflow. Each of the stages is further articulated in a series of phases. In what follows *topics* are broad areas of interest (e.g. stem cell research), *issues* are problems falling within specific topics (e.g. using human embryos for the derivation of stem cell lines) and *questions* are relative to proposals tackling one issue or another (e.g. "Ought we to use embryos for the derivation of stem cell lines?").



## Agenda setting

### Survey of participants

Participants who join in on a voluntary basis are briefly surveyed for essential socio-demographic traits such as gender, age, geographic area, etc. As compared to the survey described below and used for our experimental deployment, this is clearly shorter and only meant to screen the participating population.

### Selection of the topic(s)

Self-selected participants will cast votes on their favorite topics for consultation (they will be selected from a given list of items and will have the chance to add new items to the list). In the experiment described below we discount the value of this selection because, for pragmatic reasons, one question concerning one issue about one topic has already been selected.

The environment being open for participation to anyone who wishes to join, some degree of difference might end up being lost. This effect is undesired for a variety of reasons that range from the well-known effect of like-mindedness on the polarization of group decision (Sunstein, 2009) to the systematic *de facto* exclusion of minorities to the loss of *deprovincializing* effects associated with ‘hearing the other side’ (Mutz, 2006, p. 68). Such undesired effects of openness will therefore need to be downplayed by attempts at selective recruiting (Fung, 2006, p. 67) of traditionally disengaged and unfairly excluded populational subsets, e.g. the young and the elderly, ethnic minorities. This might be seen as a form of affirmative action.

### Validation of the question(s)

Participants will be asked to provide feedback on the formulation of specific deliberative questions drafted by a scientific committee concerning the issue(s) belonging to the topic(s) selected for consultation. This process of bottom-up input into the formulation of the questions will be allocated a finite amount of time, after which the committee will rework the questions presenting them in some newly crystalized form, along with replies to doubts and perplexities expressed in the previous phase. The consultation will be then set up around those questions.

## Deliberative participation

### Voting intention

Participants will be presented previously validated questions introduced by scant information about the issue the question is relative to. These questions will have a Yes/No form and allowed answers will range from “Completely agree” to “Completely disagree” on a 4-point Likert-like scale.

### Information

Once expressed their ‘intuitive’ vote, participants will enter a section in which a host of information materials are presented as drafted by the scientific committee. Information materials are divided in two sections.

(1) Scientific knowledge

By the time participants start engaging with the actual consultation, the scientific committee will have drafted information material pertaining to the issue being discussed. Contrary to what is the norm for offline deliberation, and relying on the availability of a longer span of time<sup>1</sup> for the consultation itself, this information material will be dynamically adjusted in the form of a crowdsourced Wiki to which participants will be able to contribute and within which they will be able to challenge assertions put forward by experts. To go through to the ethical information section, participants will be asked to answer a small set of basic questions concerning the information provided in the material. Due to the potentially changing content of the materials, in case questions relate directly to contested or controversial claims, the test can itself be revised. It must be stressed that these tests can be taken by each participant as many times as they like, until they manage to pass on to the next section.

(2) Ethical knowledge

People will be presented with a plain-language review of the main arguments tackling the ethical implications of the issue. Again, the material is only a starting point for further collaborative gathering of information and feedback. Once ready, each participant will be asked to present a principled counterargument to one of the arguments presented in the material as supporting the position he intuitively subscribes to. This is meant to test whether the participant is so ideologically

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<sup>1</sup> James Fishkin’s deliberative opinion polls (Fishkin, 2009), for instance, normally stretch over weekends, whereas online asynchronous forums can afford longer spans of time. In our case one month per question.

committed to his own position as to be unable to conceive of reasons that go against his own point of view.

The competence test used for phase (1) can roughly be automatized. This is not the case for the assessment of the arguments presented by participants in phase (2). This problem is clearly capable of affecting the scalability of the method we are presenting. Such issue can however be tackled devising this test as an automated analysis of the formal structure of the argument itself, either via some sophisticated natural language processing instruments or, more realistically, having semi-structured submissions (e.g. a list of premises, each of which must make reference to a linkable source, and a list of conclusions depending on those premises).

### Goal-oriented discussion

Participants will then gain access to an asynchronous structured forum, with contributions being answers to the deliberative question(s) and replies to answers being claims supported by evidence in favor or against the proposal (examples of tools that work along these lines can be found below). The discussion will feature both participants and experts acting as peers. The goal of the forum will essentially be that of supporting the delivery of a report containing recommendations to be handed over to a public decision-maker. The entire work will be allocated a reasonable amount of time depending on the scope and extent of the issue(s) being discussed.

### Voting

Finally, participants will express their preference a second time. This will happen at different times depending on whether people are willing to spend more time discussing and contributing to the drafting of the report or not. Data concerning the participating population, their preferences and how they transformed as a result of the process, will be attached to the report itself.

## The technological solutions

What follows presents the summary of a review of the existing technical solutions that could be employed in order to support our deliberative process. The workflow outlined above led us to single out the activities that we needed our platform to cover. Having these needs in mind, we proceeded to the evaluation of existing technologies, to see whether there were any of those that could satisfy the requirements set forth in the workflow. In order to accomplish such a result in a rigorous way, we set up our review via three preliminary steps:

- (1) Isolating relevant technologies, that might support one or more of the features we were looking for.
- (2) Subdividing this lump set of technologies into three subsets that would highlight features decisive for specific chunks of the workflow: (a) Argumentation tools; (b) Deliberative platforms; (c) Learning Management Systems.
- (3) Making requirements or *desiderata* subset-specific.

This resulted in a list of a dozen viable instruments. Both the analysis of the technologies isolated and the process of isolation of those technologies have been informed by the framework proposed in (Wenger et al., 2005, p. 8) that identifies four levels of analysis of community technology:

1. The configuration of technologies that a community and its members use [...]. In our analysis, we did not address this level.
2. The *platforms* into which vendors and developers package technology [...]
3. The *tools* that support specific activities (e.g. a discussion board), or bridge between types of activities [...]
4. The *features* of tools and platforms that make them usable or differentiate one offering from another.”

The results of our taxonomical effort can be summarized as follows.

#### Deliberative platforms

Tools such as LiquidFeedback<sup>2</sup>, IdeaScale<sup>3</sup>, Airesis<sup>4</sup>, Loomio<sup>5</sup> and OpenDCN<sup>6</sup> were initially thought to be able to provide the range of features that might support the entire deliberative process as described above. All of these implement some specification of a space for discussion and voting about issues. However, the first four ones, are mainly idea gathering tools which embeds a specific deliberative path. OpenDCN is a platform including several deliberative tools, including wikis, informed discussions, certified consultations (i.e., voting) as well as an “agenda” component to customize deliberative paths. Unfortunately, it does not provide functionalities to support the competence tests of the Information stage.

#### Argumentation tools

Tools such as Deliberatorium<sup>7</sup>, Compendium<sup>8</sup>, The Evidence Hub<sup>9</sup>, and Reflect<sup>10</sup> could support and structure interactions within the peer-to-peer discussion forum

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2 <http://liquidfeedback.org/>, (last accessed April 4<sup>th</sup>, 2014).

3 <https://ideascale.com/>, (last accessed April 4<sup>th</sup>, 2014).

4 <http://www.airesis.it/>, (last accessed April 4<sup>th</sup>, 2014).

5 <https://www.loomio.org/>, (last accessed April 4<sup>th</sup>, 2014).

6 <http://www.opendcn.org/>, (last accessed April 4<sup>th</sup>, 2014).

7 <http://cci.mit.edu/klein/deliberatorium.html>, (last accessed April 4<sup>th</sup>, 2014).

to which participants gain access after going through the information phase. Such tools might be thought to support also the argumentative test in the second part of the Information phase.

### Learning Management Systems

Learning Management Systems such as Moodle<sup>11</sup>, Khan Academy<sup>12</sup>, and a couple of LMS in use at our University, namely Just Learn It! (JLI!)<sup>13</sup> and Ariel 2.0<sup>14</sup> were one of the essential points of reference given that our process relies massively on the certification of competence to instruct a phase-wise progression of the participatory flow.

With this (by no means exhaustive) classification available we were confronted with the choice whether to bundle together two or more tools (namely OpenDCN, a LMS and an argumentation tool) which would have required substantial programming, or to sacrifice some of the relevant features and configure one tool in order to have it support most of the features. We went for the second strategy due to mostly pragmatic reasons, i.e. tight budgetary and time constraints. Eventually we picked Moodle and turned it into our tool of choice.

Moodle's modular structure and versatility allowed for the implementation of the mix of education and discussion that we needed, without any further developing effort.

## The experimental design

We officially launched the online system on March 26<sup>th</sup>. Stage one of the process described above will take place during the month of April, while stage two will kick off in May.

The experimental design, adapted from (Smith, John, & Sturgis, 2013), is roughly described below; it is supposed to provide answers to the following questions:

- (1) Are there inequalities in participation to this online system? And if so, do they mirror inequalities already existing in, for instance, electoral voter turnout?
- (2) Do individual preferences change as a result of participation?

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8 <http://compendium.open.ac.uk/institute/about.htm>, (last accessed April 4<sup>th</sup>, 2014).

9 <http://evidence-hub.net/>, (last accessed April 4<sup>th</sup>, 2014).

10 <http://engage.cs.washington.edu/reflect/>, (last accessed April 4<sup>th</sup>, 2014).

11 <https://moodle.org/>, (last accessed April 4<sup>th</sup>, 2014).

12 <https://www.khanacademy.org/>, (last accessed April 4<sup>th</sup>, 2014).

13 <http://jli.di.unimi.it/>, (last accessed April 4<sup>th</sup>, 2014).

14 <http://ariel.unimi.it/>, (last accessed April 4<sup>th</sup>, 2014).

(3) Do information, discussion and finalized discussion have differential effects on these changes in preferences?

(4) Do people involved in the process perceive it to be legitimacy-enhancing?

To provide an answer to these questions, the deliberative process described above has been adapted and somewhat simplified. The first simplification consists in the isolation of one issue concerning one topic: the direct-to-consumer (DTC) distribution of genetic tests of susceptibility to medical conditions.

Participants to this first experimental deployment need to register to Moodle and fill an initial survey meant to profile everyone interested in participating for standard socio-demographic traits and self-reported political belonging<sup>15</sup>. At the end of the survey, prospective participants are asked to provide feedback as to the partiality and intelligibility of the question. Comments to the formulation of the question are then analyzed and fed into a reformulation.

The question in this validated form is then presented to a sample divided in subsets. Users are randomized to 4 groups, which have been dubbed (a) the control group, (b) the information group, (c) the non-goal-oriented discussion group and (d) the goal-oriented discussion group. No quotas will be set on the groups because the whole sample will inevitably be affected by a significant self-selection bias<sup>16</sup>. The deliberation will be opened on the platform once this phase is over.

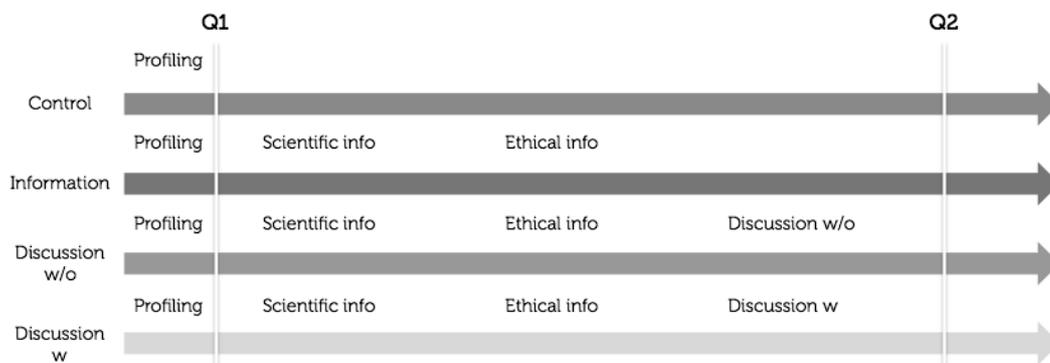


Figure 2 Experimental pipeline

Members of the different groups will follow a slightly different path, illustrated in Figure 2.

<sup>15</sup> We use a validated six-item questionnaire (Choma, Busseri, & Sadava, 2009) meant to assess liberalism and conservatism separately.

<sup>16</sup> There are also theoretical reasons why representativeness of the sample is not one of the goals for this kind of consultative initiatives. We explore those reasons in a related and forthcoming paper.

Members of group (a) will have to answer one single question, twice: the first time the question will be prompted as the system is launched, whereas the second, once the system is deemed closed. This will allow us to monitor possible changes in the public opinion due to external influences.

Members of group (b) will have to provide an answer to the same question at the beginning of their workflow. Once gone through materials and competence tests that assess their understanding of the materials, these users will have to provide again their answer to the same questions.

Members of group (c) will have the chance to comment on and ask for revision of informational material they will be provided access to and will eventually be granted access to a forum in which they will have a chance to discuss horizontally, i.e. peer-to-peer, about the reasons in favor or against one answer or the other. The forum will be moderated.

Members of group (d) will be asked to do what members of group (c) do, with one essential difference: their forum will be given the explicit goal of drafting a report to be submitted to a public decision-maker<sup>17</sup>.

It is possible to foresee the submission of a post-test survey to be sent out to groups (b), (c) and (d) asking the subset of the sample to highlight pros and cons of the deliberative process and of tool, e.g. how intuitive the graphical user interface is, how hard texts were to read, how interesting they found the topic etc.

## Relevant endpoints

Socio-demographical traits of the sample will be compared to those of the Italian general population. This will provide a way to test the hypothesis that advantaged (either economically or culturally) strata of the populace tend to engage more in active citizenship practices.

The measure of drop out rates in different groups will provide an answer to the question whether information or information + non-goal-oriented discussion, or information + goal-oriented discussion do have differential effects on the degree of engagement of citizens as to bioethical issues. We expect the rate to be significantly higher, the higher the demand put on the participant for their participation.

A potential shift in individual preferences will be measured as well. We will try and gauge correlations between the transformation of individual preferences and participation in the discursive deliberative activities of the forum (against the backdrop of a control group and a group exposed to information only).

A post-test survey will provide an answer to the fourth question, asking participants to articulate reasons why they do or do not believe this kind of democratic innovation might have a legitimacy-enhancing potential.

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<sup>17</sup> An additional resource concerning the canons of argumentation is available for every participant.

## Conclusions

We started from the suggestion that Deweyan insights as to how to further develop democracy in-between the two world wars are still relevant to the issues democracy is facing today. This, we argued, entailed considering consultative initiatives in democratic countries as primarily an attempt at educating people in order to proactively promote a specific ideal of democratic citizenship. Proceeding from these theoretical considerations we tried to embed the features of such a normative theory into an actual online deliberative process. Then we provided a brief summary of the technologies that could intuitively serve as points of reference for the development of an experimental implementation of the ideal process of deliberation we outlined. Finally we singled out the most widely used open source LMS as the tool of choice to support our deliberative process, thus coming full circle with our theoretical and normative contentions. The forthcoming experimental consultation on the direct-to-consumer (DTC) distribution of genetic tests will allow a first validation of the approach and provide elements for its improvement.

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